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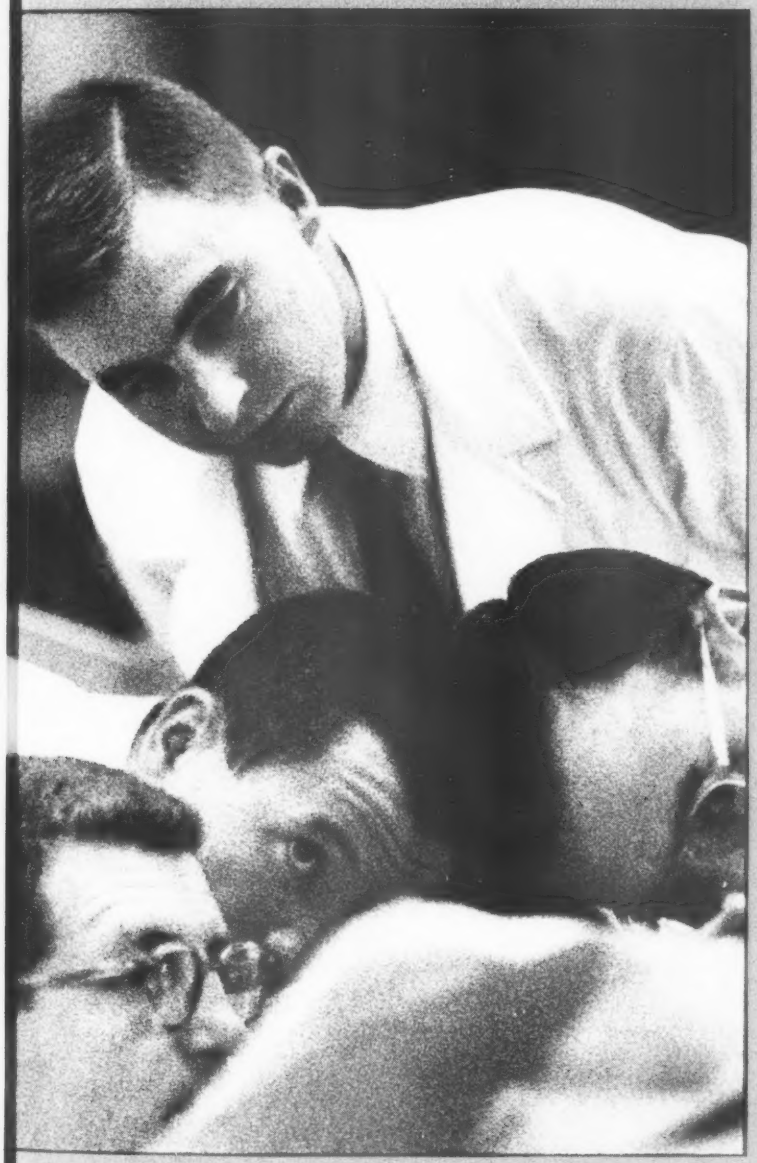

THE FERMENT IN U.S. MEDICAL EDUCATION

THE PURPOSE, CONTENT, AND METHODS OF EDUCATION FOR TOMORROW'S PHYSICIANS ARE BEING STUDIED AND DEBATED

... *PAGE 4*

The Johns Hopkins Magazine

November, 1960 *Volume XII Number 2*

◀ In the midst of an active and productive college career, moments of solitude and introspection, when one may redefine his goals and redream his dreams, are rare. Here a student walks alone in November rain on Keyser Quadrangle. Photo by William C. Hamilton

THE FERMENT IN U. S. MEDICAL EDUCATION 4

This article, the second of two, reports on significant changes being made in medical schools to cope with the great progress of science.

CAVE EXPLORER 7

A Hopkins graduate student spends his free time scaling underground cliffs and fording subterranean streams—for the fun of it.

THE PRICE OF INDIFFERENCE 10 *By Robert C. Lloyd*

If they are to make the best use of their talents, high school students need proper guidance. Too many aren't getting it.

MY HECTIC WORLD ON WALL STREET 12

The busy and fascinating day of an alumnus on the floor of the stock exchange is depicted in photographs captioned by him.

NEWS FROM JOHNS HOPKINS 2

A JOHNS HOPKINS GAZETTE 20

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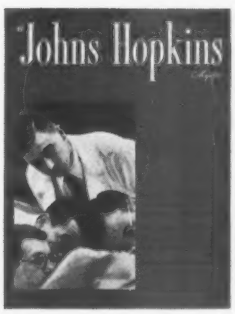

The Cover:

What and how shall we teach our physicians? Medical educators are trying to answer this question, and they are experimenting boldly to find the best solutions to the complex problems facing them. Photograph by Robert Phillips

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News from Johns Hopkins

A CONCISE REVIEW OF INTERESTING AND SIGNIFICANT EVENTS AND DEVELOPMENTS AT JOHNS HOPKINS

● The Ford Foundation has announced a $6 million grant to Johns Hopkins.

The grant was awarded as the first step in the foundation's special program to assist universities with large, unrestricted grants. (Four other universities simultaneously received similar grants: Stanford, Notre Dame, Denver, and Vanderbilt.) Under the terms of the grant, the University must match each dollar from the foundation with two dollars from private sources over the next three years.

Henry T. Heald, president of the Ford Foundation, explained that "the first grants were based on a year of study of each university's academic goals for 1970 and beyond and the financial plans to achieve them. . . . We sought private universities already embarked on future-development programs commensurate in scope, imagination and practicability to the vast needs of American society."

Johns Hopkins will receive a first installment of $1,967,000 for "high-priority needs." Of this, $63,000 will be used for faculty salary increases, the remainder for additional science facilities.

● The Johns Hopkins School of Engineering, which in 1950 took pioneering steps in the direction of engineering science, has taken yet another major step towards emphasis upon science in engineering education. Three departments—aeronautics, civil engineering, and mechanical engineering—have been combined into a single department, to be known as the department of mechanics. Head of the new department is George S. Benton, professor of meteorology and former acting chairman of the department of civil engineering.

The change gives recognition to the fact that there are important basic principles common to all three "branches" of engineering. In the last decade, there have been more and more mutual interests cutting across departmental lines. Research projects in each of the three departments have been closely related to each other, and courses, teachers, and research facilities have been shared by the departments.

"The faculty," comments Dean Robert H. Roy, "has increasingly demonstrated the inadequacy of dividing engineering into neat compartments labeled 'civil' or 'mechanical.' Engineering science recognizes no such boundaries."

Along with this streamlining move, several conventional subjects of engineering—such as surveying, engineering drawing, and machine design—have been dropped. It is likely that courses in the design of rigid structures will also be discontinued. (An undergraduate program in the theory of structures will be continued, but will be extended beyond static systems to include problems in vibration and impact.)

The change in departmental organization, initiated by the faculty members themselves, has been approved by the advisory board of the School of Engineering, the visiting committee to the School, the administration, and the University trustees. Accreditation for a program in engineering mechanics will be sought from the Engineers Council for Professional Development.

● American teenagers, who have developed a distinct "adolescent culture of their own," show far more interest in cars, dates, sports, and popular music, than in education. But there are ways to reverse adolescent tendencies so that they actually reinforce educational goals.

So reports James S. Coleman, associate professor of social relations, who has completed a study of the "climate of values" in nine Midwestern high schools. Adolescents, he found, do not react to the exhortations of their teachers for greater academic achievement, chiefly because this involves interpersonal competition. The extra achievement by one student in effect lowers the position of others. But other forms of achievement, noticeably athletics, generate popularity rather than scorn, largely because they involve interscholastic achievement.

"One obvious solution is to substitute interscholastic competition in scholastic matters for the interpersonal competition for grades which presently exists." As examples, Dr. Coleman suggests debate teams, group discussion tournaments, drama and music contests, and science fairs. These activities can only be effective if they are well-organized and well-publicized, so that they bring glory to the school and accolades to the participants.

● To further their search for basic knowledge about turbulence, Hopkins engineering scientists have installed a new wind tunnel in Maryland Hall.

Unlike most wind tunnels which move air at high speeds (up to 10,000 miles per hour in some), this one is designed to blow a smooth, velvet-like current as slowly as five miles an hour.

Stanley Corrsin, professor of fluid mechanics, who heads the team of research scientists working with the new tunnel, explains that when the current is smooth, the scientist has more control over the characteristics of the generated turbulence to be studied.

Designed and built with more than $100,000 in federal and industrial grants, the new tunnel is two stories high and about one hundred feet long. (A large tunnel is needed because the air becomes turbulent from friction along the walls, thus leaving a smaller cross section of smooth air for testing.) The tunnel is arranged as a closed circuit through which the air is recirculated. A two-stage high pressure fan, operating at low speeds and with little noise, moves the air.

To make sure that the air is as smooth as possible when it reaches the testing section where turbulence is generated and measured, the current passes through several sections which even out the temperature and reduce turbulence. It passes through a system of curved metal vanes, into a huge settling chamber, through finely meshed wire screens,

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and through a tapered section where the speed is increased.

Turbulence is one of the common technological problems of our time, and it is important to chemists, astronomers, oceanographers, meteorologists, or any scientists concerned with the flow of liquid, air, or gas, whether in pipes, jet engines, or over propellors.

There are only two or three such wind tunnels used for basic research in existence.

● University press publishing is growing faster than any other type of publishing—an expected 78 per cent in the next five years. And the Johns Hopkins Press is growing with the field.

During the past year, book sales jumped 26 per cent, according to Harold E. Ingle, director of the Press. The increase was greater than total sales were in 1948. And since 1948, the Press has increased its dollar volume by 350 per cent (while all university presses increased dollar volume by about 260 per cent in the same period).

In contrast to 1948, when most Hopkins books dealt almost exclusively with the humanities, the present list represents most of the academic interests of the University. In the past five years, some 2,000 reviews of Hopkins books have appeared in more than 1,000 periodicals throughout the world.

Many of the books from the Johns Hopkins Press have proved to be "commercial" successes. It is worth noting that paperback reprint rights to seventeen Press books have been sold to such firms as Doubleday, Knopf, Bantam, and Harper. Bantam plans a 90,000-copy first run of the Press's own "best seller," *The Seven Ages of Woman*, by Dr. Elizabeth Parker.

● An eleven-story apartment-office building is being built across Broadway from the Johns Hopkins Hospital.

A joint venture of Johns Hopkins, the Broadway Development Corporation, and the Baltimore Urban Renewal and Housing Agency, the building will contain four floors of medical offices and seven floors of apartments. The apartments will be available to medical and house staffs, medical students, nurses, and other Hopkins personnel. Priority on office space will be given to members of the Johns Hopkins medical staff.

● And in the freshman class there is a lad from Topeka, Kansas, named John S. Hopkins.

Donald W. Douglas, Jr., President of Douglas, discusses valve and fuel flow requirements for space vehicles with Dr. Henry Ponsford, Chief, Structures Section.

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THE FERMENT IN U. S. MEDICAL EDUCATION

HOPING TO COPE WITH THE RAPID ADVANCE OF SCIENCE, MEDICAL EDUCATORS ARE BOLDLY BREAKING TRADITION

MEDICAL educators are pondering a host of problems which bring to mind the critical era of the Flexner Report. ("The Crisis in Medical Education," *The Johns Hopkins Magazine*, October 1960.) An expanding population with its increasing demand for more and better medical service is creating a growing need for more physicians. To provide the doctors needed by 1975, the U. S. must expand existing medical school facilities and build twenty to twenty-four new medical schools.

This is a formidable challenge. In the first place, much of the necessary financing will almost certainly have to be done by the federal government—over the resistance of some physicians and their professional organizations. Faculty must be found to staff new and expanded medical schools, and there is already a shortage of qualified teachers. And more top-quality medical students must be attracted—a task made more difficult by the recent decline in the quantity and quality of medical applicants (which results partly from the time and expense required for a medical education and from the competition with university PH.D. programs in science).

There are many such problems, but perhaps none are more perplexing and more important than those pertaining to curriculum. The faculties of most Ameri-

can medical schools are asking themselves what the content of medical education should be, and how it should be taught. The forthcoming answers, which have vital relevance to the future of American medicine, indicate some bold and imaginative thinking.

The extent to which medical school faculties are re-examining curriculum is impressive. Some 90 per cent of the nation's medical schools have some aspect of their educational program under study. Lowell Coggeshall, dean of the University of Chicago School of Medicine, points out that "today we are experiencing an educational ferment in medicine impressive in substance, quality, and foresight. In the past decade and a half, there has probably been more experimentation resulting in better educational patterns and more research of a superior quality than has occurred during any similar period in medical history."

This unprecedented re-evaluation and experimentation going on in medical education today is largely the result of the scientific revolution that has taken place in medicine. At the turn of this century, medicine was still primarily the art of healing, with virtually no relation to science. Progress was chiefly in the form of descriptive medicine—the revered physician observing, describing, classifying disease at the bedside. Medical education consisted largely of handing down from one generation to the next the dogma of the healing art. With the founding of the Johns Hopkins School of Medicine, the scientific phase of American medicine began. Pre-clinical teachers of anatomy, physiology, and other basic sciences were made full-time university professors for the first time. The transition was completed in 1914, when Johns Hopkins broke tradition again and placed its clinical faculty on a full-time basis.

The years since then have come to be known as "the golden age of medicine." More progress has been made in the first half of this century, particularly in the control of infectious disease, than in all the previous 2,300 years since Hippocrates. But more important than any single discovery or invention is the fact that physicians have been forced by the pressures of progress to become scientists.

As medical science has yielded more and more new knowledge, medical schools have become hard-pressed to work it into the curriculum. By the end of World War II, the medical curriculum had become so crowded that the student had almost no time for his own study and development (a situation not entirely remedied in some places).

FORCED by this situation to re-examine curriculum, medical educators have turned to the task earnestly. They have projected before them the whole system of medical education and have begun to view it with the same critical and penetrating analytical powers that they display in their laboratories. They have raised some serious questions and some controversy.

Although much of the re-evaluation has been concerned with details of curriculum, two major issues of critical importance stand out. Complex and interrelated, they embody many of the less important questions of detail. The big questions: Should medical education be graduate education, wherein the student is given considerable freedom and responsibility for much of his own education? Will the emphasis in medical education be on the scientific or the practical?

Thomas B. Turner, dean of the Johns Hopkins School of Medicine, declares: "The lockstep of the curriculum must be broken. The student must have time to be a true graduate student, to develop his professional individuality, to reflect, to study in depth." And George P. Berry, dean of the Harvard Medical School, warns that "an overcrowded curriculum can deaden curiosity and dull the edge of original thought." He claimed in 1953 that "the whole system of medical education urgently needs restructuring."

Obviously, if the medical student is to be given increasing responsibility for his own education as a graduate student is, he must have free time. And if free time is to be squeezed from a badly overcrowded curriculum, some "restructuring" must be done. Change seldom comes easily, however, and medical education has its share of sacred traditions.

CURRICULUM committees in many of the nation's medical schools have been laboring to find ways to carve free time out of tight curricula and still graduate M.D.'s who are prepared to cope with the rapidly advancing science of medicine. The alternatives they face are: (1) to lengthen the time spent in the medical school, (2) to lengthen the academic year, (3) to accept college students before they have earned the baccalaureate degree and assume the responsibility for part of their premedical education, and (4) to modify the curriculum and the methods of presenting subject matter so as to gain more time through increased efficiency.

Adding another year to the medical school period is no solution. The required time for a medical education, including medical school, internship, and residency, is already too long. Lengthening the academic year adds time to the curriculum, of course, and taking students from college before graduation permits some consolidation of premedical science courses and saves time. The revised medical program at Johns Hopkins does both and has provided in its curriculum three academic quarters of ten weeks each of free time for research, electives, study, and self-education. Other

schools, including Northwestern and Stanford, have similar plans. Harvard, Western Reserve, Northwestern, and other schools have rearranged curricula in an effort to present subject matter more concisely and thus gain free time.

In the search for more free time, medical faculties immediately become involved in the other major question of whether medical school education is to be scientific or practical. They must decide, also, what the objectives of the medical school are to be.

Some feel that the prime duty of the medical school is to train physicians. Others think of it as a place for graduate education in human biology with emphasis on disease. But most medical educators feel it should be both. They don't see it as an "either-or" situation. Dean Turner, however, does stress that the emphasis must be on science. He believes that by producing a good medical scientist, the school automatically produces a good practitioner. He rejects the suggestion made in some quarters that there be two kinds of medical school: one to produce research scientists and the other to graduate practicing physicians. In this, he has the support of Harvard's Dean Berry and most other medical educators who feel that the art of medicine is irrevocably wedded to the science of medicine, and that the creation of two kinds of M.D. would be a grave mistake.

THE attempt to provide students with more free time by modifying the curriculum so that the preclinical sciences are taught more concisely raises the question of how much basic science should be given in medical schools and how it should be taught. Until the recent experimentation in medical education, the pattern of the four year medical school usually included a heavy concentration in anatomy, physiology, biochemistry, and microbiology (along with other preclinical sciences) in the first two years. In many schools, these subjects were taught in blocks, with the student spending several weeks in anatomy, then moving into a long period in physiology, and so on through the preclinical sciences. Most of the last two years were then spent in the clinical sciences studying the application of sciences to the treatment of disease.

This, according to the educational policy committee of the Johns Hopkins medical faculty, is as it should be. W. Barry Wood, Jr., the committee chairman, strongly defends the time spent on the preclinical sciences on the grounds that all branches of clinical medicine are becoming more rather than less scientific. Physicians lacking a thorough grounding in basic science, Dr. Wood contends, cannot possibly keep abreast of the rapid advances in knowledge which must be applied to their clinical practices if their patients are to receive the best that medicine has to offer. According to the Hopkins committee, the presentation of these sciences in blocks is proper, since the overlap and repetition inevitable in this method are an essential part of the educational process.

Although nearly everyone agrees that the preclinical sciences must be thoroughly covered, many think they can be taught more efficiently. Curriculum committees at Harvard, Western Reserve, Stanford, and Northwestern have decided that the basic sciences can be taught in less time by integrating them. Thus, at these schools, teachers from the different disciplines become part of committees which present a correlated program in which, for example, the anatomy, physiology, biochemistry, and pharmacology of the circulatory system may be covered at one time.

The advocates of such integrated teaching point out that it reduces the time necessary to teach the preclinical sciences, and that it is more logical to show the relationship of all the scientific disciplines to a biological system at one time, rather than giving the anatomy at one point, the physiology at another, the microbiology at another, and so on. Dr. Berry contends that "such subjects as physiology, biochemistry, and pharmacology, by having so much in common, can be adroitly combined in a way to permit teaching more efficiently the essential principles they contribute to medical education."

Others, somewhat skeptical of this method of integrated teaching, point out that teaching by committee is cumbersome and time consuming and that the faculty has little time left for its own development and research. At Johns Hopkins, the theory is that the student will benefit more by doing most of his own integrating. Further, Hopkins professors point out that integration must be a continuing process in the medical school, that it is an essential part of the professor-student relationship and can be best accomplished in this intimate and informal way. The responsible clinical professor, in discussing a ward case with his students, draws freely from the scientific disciplines and integrates sufficiently.

The disagreement here is largely over methods. There is no one *right* way for all medical schools. Each must establish the program which best fits it. The important thing, says Dr. Wood, is that the approach be scientific, and the faculty be dedicated in its effort to provide the student with the scientific principles he needs to continue his own education.

JUST as there is disagreement over how to get more free time into the curriculum, there is disagreement over how it should be used. The most controversial "trends" in medical education are those which aim to teach *comprehensive medical care* in the medical school. The term is a broad one which means different things to different people. It involves the concept of preventive medicine and the belief that the patient is directly affected by his socio-economic environment. Comprehensive teaching is designed to equip the physician to treat "the whole patient." It may have as one of its goals showing the medical student the role of the physician in a complex society.

Comprehensive medical care, it should be stressed, is not a discipline; it is a point of view, an attitude that a doctor has about himself, his patient, and society. Harvard's Dean Berry says, "The objectives of the physician at mid-century far exceed the cure and alleviation of disease. More important are its prevention and early recognition. Beyond that, the obligation has been accepted by the doctor to strive for the maximal physical, mental, and social efficiency of the individual, his family, and the community."

This is a giant step beyond yesterday's theory that the physician's duty is to treat disease. And although few medical educators would deny the importance of preventive medicine or dispute the influence of the patient's environment on his health, there is sharp disagreement over the degree to which the medical school should be responsible for inculcating these attitudes in the student. It becomes again the question of whether the valuable time should be spent on the scientific or the practical.

Continued on page 16

Photographs by
Gunther Schmidt

As he ascends a two-hundred-foot rope, Bill Plummer is dwarfed against the rocks of West Virginia's Hell Hole Cave.

CAVE EXPLORER *Danger and discomfort are a necessary part of the hobby of a Hopkins graduate student*

Explorers map dark caves which sometimes yield scientific data

FIVE days a week William Plummer, B.A. '60 and first year graduate student in physics, prepares for his PH.D. by concentrating on the movements of the heavens and the analysis of matter and light, but on most weekends he rarely even sees daylight. For Bill Plummer is, in his free moments, a speleologist, and his weekends and summer vacations for the past three years have been spent exploring caves.

Searching out new underground territory to explore (often with the help of local farmers who point out new sink holes and streams), Bill Plummer and the other twenty or so members of the Baltimore Grotto of the National Speleology Society travel through West Virginia, Maryland, Virginia, and Kentucky. Equipped with ropes, lamps, ladders, and a few sandwiches, the cavers descend and remain below ground for days. (Bill Plummer once remained underground for an entire week exploring Wind Cave in South Dakota.) They struggle down two-hundred-foot cliffs, crawl along narrow ledges, swim up subterranean streams (all of this with only the beams of their carbide lamps to break the absolute darkness), and they generally endure physical and technical hardships that would discourage even seasoned mountain climbers. And why do they do all this? Primarily, they say, for the pure pleasure of it.

SINCE speleology has only been organized in this country for the past twenty years, caves remain an often-ignored source of biological and geological data. In underground passages, unmarred by the elements and civilization, geologists often find valuable information about minerals and strata, and biologists have been particularly interested in the species of animals dwelling in caves as perfect examples of complete adaptation to physical environment. (Fish in underground pools show many of the characteristics of deep-sea species. Because of the complete absence of light many are blind and have lost all pigmentation.)

With this in mind, cavers often do valuable mapping and photographing during their trips to add to the small store of information available about the cave systems in the United States. The Baltimore speleologists have discovered and completely explored several new caves in Maryland and West Virginia, and have reported their findings to other cavers in the country.

But for all of its practical results, cave exploring remains for Bill and his friends just a hobby.

Using the Prusik technique of climbing, a method that was first developed for mountain climbers, Bill ascends a rope.

Bill Plummer and two other speleologists rest in a "large room." To increase speed, exploring parties are usually kept small.

In mile-long Salmon Cave, cavers wade in a shallow area. Often they must swim.

WILLIAM C. HAMILTON

Bill Plummer adjusts a spectrograph in the Hopkins astrophysics lab.

By ROBERT C. LLOYD

THE PRICE OF INDIFFERENCE

For lack of adequate guidance, too many young people are failing to make the best use of their talents. Both they and society suffer.

IN THEORY, at least, our nation's educational system works something like this:

We provide every child with twelve years of free public schooling. During those twelve years, the students are sorted out for specialized curricula. The intellectually qualified are offered a rigorous program to prepare them for college; others are channeled into a general or vocational program suited to their interests or special talents.

The ablest students go on to higher education, each to a college, where, as Henry Wriston puts it, "he is worked to the limits of his capability, no more and no less." To ensure maximum opportunities in higher education, the deserving and the needy are given enough financial assistance to carry them through to graduation.

That's the way it works on paper, and in the best of all possible worlds, it is probably a perfect system. The nation is guaranteed the fullest use of the talents of its citizens. The citizens, we can assume philosophically, are happy; each has been trained to use his talents to the utmost, and—assuming a smooth-running economy—is leading a full and challenging life.

But reality falls far short of the ideal. There are plenty of statistics which indicate that the system does not work as well as it should. Just a few will suffice to illustrate the point:

▶ About half of the top 10 per cent of high school graduates do not go on to higher education.

▶ About one-fifth of the academically talented (the upper quarter in intellectual capacity) do not even finish high school.

▶ Of those admitted to college, only about 50 per cent graduate.

This is a deplorable waste of human talent. Not only is the nation deprived the best contribution of many of its most capable citizens, but these citizens, as individuals, are deprived the useful and meaningful life they deserve.

Why does the educational system of the richest and most democratic nation fall so far short of perfection? One of the most obvious answers is suggested by the question itself. In a democracy, the ultimate decision belongs to the individual; he may use his creative talents to any degree he cares to. In a totalitarian state, of course, the whole education system can be unified under one authority. It is conceivable that an electronic computer, given the results of a thorough testing program, could churn out schooling assignments for students with remarkable efficiency. And the decisions of the computer would be final.

In our admittedly cumbersome democratic system, public education is fragmented into thousands of locally controlled school systems of widely differing quality. (It is a revealing statistic that of the 26,500 high schools in this country, 5,000 produce 82 per cent of the college students.) The pupils in each of these locally controlled systems are compelled by law to

Robert C. Lloyd, B.S. '48, M.Ed. '53, Ph.D. '56, is administrative assistant to the superintendent of Baltimore Public Schools. He served as consultant in guidance for James B. Conant's recent study, *The American High School Today*.

spend so many years in school, to study certain prescribed subjects, to submit to programs of measurement and testing. These minimal pressures on the student point to what is most lacking in the totalitarian system: a recognition of individual rights and autonomy. In our system, the right to decide finally how he will develop his talents resides properly and irrevocably with the student himself.

Naturally, the degree of perfection attained in our system depends largely on the student's ability to make the wisest decision. And the above statistics indicate that too many of them are making wrong decisions, often in terms of the basic goals of education, society, and the individual. This is alarming, but understandable. American high school students are prodded to excel by their more influential teachers and pressured to conform to mediocre standards by their peers. They are pushed by their parents and pulled by the 2,000 college admissions directors. Or they are neglected by both. They have many more subjects and courses from which to choose than their parents ever had, and a wider variety of vocational opportunities open to them. The average high school graduate qualifies for at least two-hundred of the more than sixty thousand different job titles in our modern, complex world. And requirements for jobs, especially the training and education needed, are generally greater than ever before.

Faced with confusion and a bewildering array of alternatives, it is increasingly difficult for the high school student to make the wisest decision. But to help him reach that goal, modern education has produced the guidance counselor.

THEORETICALLY, the guidance counselor is in the key position to see that American youth capable of higher education attend college—the right college for them. In that best of all possible worlds I mentioned before, every sizable high school would include a specialist, "a college liaison counselor," who would devote all of his time to determining the interests and abilities of a manageable group of students. He would meet frequently with these students and their parents, making available to them information about various institutions of higher education and different courses of study. He would help the student to make the wise decision: to attend the right college, to study the right subjects, to benefit from scholarship and loan programs.

In actuality, the guidance counselor is seldom so effective. In the first place, there simply aren't enough guidance counselors. For the more than 10 million students now in high school there are some 22,000 guidance counselors. Of these, only about 6,000 are devoting full time to guidance work. According to the U. S. Office of Education, only about 4,000 secondary schools (out of about 26,500) have on their staff someone who devotes "half time or more to guidance activities." For those schools that have counselors, the ratio of students to full time counselors is about 550 to one, but the variation runs from 125 to one up to more than 1,000 to one. Dr. James B. Conant, in his recent survey of the American high school, recommended a ratio of 250 to 300 students per counselor, which means that we ought to have at least 28,000 more full time counselors for secondary schools alone.

Furthermore, the guidance counselor usually can spend only a small fraction of his time helping students who want to go to college. He must advise students who will not continue their educations. Frequently the counselor is also asked to be an attendance officer and a disciplinarian, simply because school officials do not appreciate the important functions of counseling.

If he is responsible for 550 students, as the average guidance counselor is, he has about three hours per year to spend with each student—that is, if he spends all of his time counseling students. He doesn't. He is usually expected to visit colleges and industries. He must keep extensive records, administer tests, confer with visiting representatives from business and industry. He is expected to plan and conduct group meetings with students and parents.

EVEN IF THE guidance counselor could concentrate his efforts on advising only the college-bound students, he would be hard-pressed to do an adequate job. More and more parents are planning on college for their children. But parental plans are often not based on sound information or wise understanding, and guidance counselors have the ticklish problem of channeling this interest in the proper direction. (Perhaps there is no more difficult task for the counselor than trying to tell a parent that his child is not college material.) Parents sometimes need to be persuaded that it is better for their children to attend a good college a thousand miles away than to attend one less suitable within easy driving distance. This can be difficult, for as one New York high school principal observed, "It is a common attitude here that the University of Michigan and the University of Wisconsin are in the Far West."

To complicate matters further, it has become common practice for college-bound seniors to forward eight to ten or more applications. Multiple applications are as much the bane of the guidance counselor's existence as they are of the admissions officer's. The perennial nightmare of the admissions officer is a freshman class half-filled, or one in which all the candidates accepted actually enroll. But for the guidance counselor, the nightmare has many chapters: hosts of college catalogues to be read and comprehended; batteries of tests to be administered and their results interpreted; a wide variety of application forms to be filled out; recommendations to be written, many times

Continued on page 17

"This is the American Stock Exchange. The only things which stand still in this teeming jungle are the twenty-eight trading posts where the transactions are completed. (I'm just standing still long enough to have my picture taken.)"

Photographed for The Johns Hopkins Magazine by Alan J. Bearden

"Whoosh. I'm off to a trading post, signaling my clerk as I run. I clock about eight miles a day this way."

My Hectic World on Wall Street

To William Mayer, trading on the stock exchange is a busy life, but a profitable one

TO MOST PEOPLE, a stock exchange seems utter confusion. Its activity is feverish, noisy, and fascinating; as clerks shout and lights flash and the cryptic symbols of the ticker tape move across an illuminated board, hundreds of men swarm about in the mysterious conduct of their business. A stock exchange is a multi-ringed circus—no less so for its serious function.

To William D. Mayer, B.A. '57, the *mystique* of the stock exchange has meaning, because trading stocks is his profession. A member of the elite American Stock Exchange since August, 1959, Mr. Mayer admits that working "on the floor" is nerve-wracking and exhausting. But like a battle worn soldier, he finds the smell of "combat" irresistible. And with some twenty thousand shares to trade on an average day, dull moments are rare. These photographs, which are captioned by Mr. Mayer himself, depict one of those average, hectic days.

Never far from trading activity, Bill Mayer pauses to read the ticker during lunch.

"A customer has phoned our office to ask the price of a stock. The clerk, who has a direct line to our office, signals to me on the floor."

"In a few seconds, I can signal back the latest price. Now the customer may decide to have me buy or sell that stock for him."

"When I receive an order, I place it with a specialist, an expert and sole dealer in certain stocks. His is a lucrative but dangerous job."

STOCK EXCHANGE

Continued

"3:45 p.m. My partners and I are tallying profits and losses. I'm consoling one of our customers, who didn't do so well today."

"Tired blood. The prize for playing this crazy game is money—a fair amount of it, particularly when I can trade on my own account. But the pace is killing. Gradually, I suspect, I will be spending more and more time working in my office."

ATLAS
THOR
TITAN
MINUTEMAN

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The Ferment in U. S. Medical Education

Continued from page 6

Some medical schools have made comprehensive medical care a major part of their curriculum. At Western Reserve, for instance, a "clinical science" program in the first year brings the student into contact with a family into which a child is to be born. The student visits the family and observes and records what he finds. He participates in the delivery, then studies through the four years of medical school the growth and development of the infant in the family. At Vanderbilt University School of Medicine, the comprehensive care program is based on a "family clinic." The first year student is assigned to a family to which he is observer and adviser during his preclinical years. He visits the family frequently and acts as its liaison with the clinic. Many feel that in these programs the student is given responsibility for which he has not been adequately prepared. Nor are they convinced that the programs' accomplishments justify the time spent.

Students in their final year at the University of Kansas Medical School spend five and a half weeks in a preceptorship program. Each student is assigned to a selected practitioner in a small town, and during this period he serves a sort of apprenticeship, often living with the preceptor and accompanying him as he makes his calls, visits the hospital, and sees patients in his office. If the preceptor goes fishing on weekends, the student goes along. Jesse D. Rising, chairman of the preceptorship committee, lists the objectives of the program: "It is relatively unimportant that students, while on their preceptorships, have an opportunity to see illness and learn common techniques of treatment that are not encountered in the medical center. Nor is it particularly important that students are introduced to practical medical economics. Finally, it is of no educational significance that students *may* be recruited into rural practice. What seems more important to me is that the preceptorship functions as sort of a 'retreat' for medical students during which they can think about their goals and future and contemplate the physician's place in society as well as his social and civic responsibilities."

But such preceptorship programs are criticized for "regressing" to the era when the medical educator was a practitioner who taught part-time.

Still other schools hope to give their students the comprehensive care point of view in a much more limited way. Harvard has a department of preventive medicine which presents to medical students all points of view on sociological problems as they relate to medical care. And third and fourth year students join professors and residents in an extramural home care program. The Johns Hopkins School of Hygiene and Public Health gives medical students a ten-week course in community health in Year III and a five-week course in social medicine in the final year, during which students are assigned to families and make field trips to observe various community health services.

The comprehensive care programs, with their emphasis on personal and social factors, win favor with a press and public that have become harshly critical of American medicine. Modern medicine, it is charged, has become too scientific. As a result medical students are cynics by the time they leave school and they develop into highly specialized businessmen-scientists who are cold and unsympathetic. Today's doctors, the complaint goes, are not really interested in the patient as a human being with problems. An aura of nostalgia surrounds demands for a partial return to the "horse and buggy era" of medical practice.

A good many medical educators reject these charges and the broad comprehensive care programs which hope to answer them.

Dana W. Atchley, emeritus professor of clinical medicine at Columbia University College of Physicians and Surgeons, doesn't believe that doctors can be trained to be compassionate and sympathetic. He says, "No warm sympathetic person is frozen by research experience, but neither is a cold tactless individual thawed by general practice." And recent sociological studies of medical students support him. Dr. Atchley also feels that "there is hardly enough time for medical schools to produce a medical scientist; little can be spared to accomplish what maturity will steadily bring to the student, in proportion to his natural endowments, if he can absorb his later experience critically."

There was a time when the physician had little more to offer than sympathy and understanding, and these are valuable gifts in the art of healing. But the medical scientist today brings to his patient scientific insight and perception and a knowledge of human biology and medical science that offers the greatest possibility for the cure of disease. And he is just as likely to be as warm and sympathetic as his often ill-equipped predecessor was (though considerably busier).

Medical educators object to broad programs of comprehensive medical care not because they feel that the subject is unimportant, but because they believe it wrong that such programs should exist at the expense of medical science. "Changes in the medical curriculum which sacrifice training in basic science, either clinical or preclinical, for practical experience," says Hopkins' Barry Wood, "will inevitably lead to inferior medical care."

Robert Loeb, in his presidential address to the Association of American Physicians, warned: "The illumination of the mechanisms of disease derived from an intensive undergraduate study of basic sciences must not be supplanted by lofty but unrealistic attempts to modify the total lot of man or overweening emphasis on the routine minutiae of practice." Dr. Loeb adds, "I make a plea that we maintain the emphasis in undergraduate medical education on intellectual growth and thereby guard against the subtle encroachments of romanticism."

Carleton Chapman, professor of medicine at the University of Texas Southwestern Medical School, declares that "the inescapable responsibility of a medical school is to make medical scientists out of the best material it can get.... In the rush to make... paragons of universal understanding and accomplishment, the main responsibility is becoming obscured."

Harvard's Dr. Berry stresses the importance of achieving a balance. He feels it is unwise to dilute the student's opportunities so that he does a little of everything, but he insists that a "small amount of time invested in acquiring this point of view [of comprehensive medical care] changes the whole development of the medical student."

The Johns Hopkins theory is that, properly taught, the medical student will develop this point of view without having formal courses in the behavioral sciences. The good professor is very much aware of the importance of environmental influences and preventive medicine, and he makes it an essential part of his teaching, regardless of the discipline he represents.

Dean Turner strives to put the role of the medical school into perspective by pointing out that four years in the medical school are only part of the physician's education. But it is the part which must be used to instill in the student the proper respect for scientific evidence, a spirit of inquiry, and a knowledge of the fundamentals of medical science. The physician has an internship and an average of three and a half years in postdoctoral work after his four years in medical school, Dr. Turner explains, and it is here that he can develop his specialty and concentrate on the clinical and practical aspects of medicine if he chooses. Dr. Turner feels strongly that the university medical school has a responsibility for the postdoctoral education of the physician. (Johns Hopkins has about four hundred postdoctoral students—more than the number enrolled in the traditional Medical School classes.)

PERHAPS one of the wisest observations about the ferment in medical education was made in a discussion group at an institute for clinical teachers last year: "Too much emphasis has been put on the details of curriculum planning, on establishing methods and objectives for clinical as opposed to basic science teaching, and on the value system of the future physician. It is urgent that we re-emphasize that medical education is a part of university education, and that its goal is to provide a sound foundation, irrespective of the special field of endeavor the physician might choose to pursue."

Similarly, spokesmen for the Association of American Medical Colleges recently stated: "No rigid curriculum can be prescribed for accomplishing the objectives of medical education. On the contrary, it is the responsibility of the faculty of each school continually to re-evaluate its curriculum. Each school should utilize those methods and approaches that the particular interests and abilities of the faculty indicate would provide the most effective education...."

The problems confronting medical education do not stand clearly and distinctly separate as palings in a fence. Rather they are closely entwined and inextricably involved one with the other. We need more doctors. To train them, we need more medical schools. But we don't have qualified teachers to staff new medical schools, and the quantity and quality of medical applicants is declining. One reason for the decline in quantity is the time and expense required for a medical education. Efforts to reduce the time by trimming curriculum are hampered by the fantastic rate at which we are accumulating new knowledge and the necessity for keeping the scientific emphasis in medical education.

The experimentation in medical education today and the disagreement about its details reflect a healthy concern on the part of medical educators for the future of American medicine. With this kind of self-examination characterizing medical education, there is little likelihood that our future physicians will be inadequately prepared to cope with the demanding problems of modern medicine. Nor is it necessary that there be complete agreement on the best way to educate the medical student, for the diversity of medical education is to a great degree its strength.

The Price of Indifference

Continued from page 11

over. When the applications are all submitted, he dreams of the imminent prospect of having to cope with rejection notices, inadequate scholarships, irate parents, and bewildered students.

Although the admissions officer and the guidance counselor are spiritual comrades battling the same problem, there is a sad lack of communication between them. Guidance counselors are expected to provide information about hundreds of colleges, yet too often they must rely on vaguely-worded catalogues and bulletins which fail to give an accurate picture of the nature and quality of instruction. Course descriptions in college catalogues are notoriously uninformative and over-inflated, and in some catalogues, a number of the courses listed are never given.

It is a regrettable trend in higher education that the distinctive characteristics of different colleges are being concealed while the colleges ape each other. Once it was easy to tell an institute of technology from a college of

agriculture and the mechanic arts or a teachers college from a business college; today, more and more institutions are described, often grandiosely, as "universities," each attempting to offer the same smörgåsbord curriculum. Henry Wriston suggests that if colleges "are willing to define their purposes, to build sound and coherent plans to attain them, and to shape their publicity and their descriptive pamphlets to describe accurately what they actually do, the differences between colleges will be clear. Students, with the aid of skilled guidance officers, can then get what they have a right to expect."

College catalogues rarely spell out clearly the demands made on entering freshmen. For this purpose, no better source exists than a "freshman class profile," which provides, in addition to detailed information on admissions policies, a thorough analysis of the most recent freshman class. Only a small number of colleges now provide these profiles, although others are awakening to their value and the College Entrance Examination Board has encouraged its member colleges to provide them.

In fairness to college officials, it must be pointed out that the record of guidance counselors as effective communicators is no better. High schools, with few exceptions, do not publish catalogues about themselves, and so admissions officers are forced to judge high schools (and their graduates) on the basis of reputation or on the performance of the high school graduates at their institution. High school profiles, detailed to provide information on all important aspects of a school's program and its student body, are urgently needed.

The plea of admissions officers is not only for more accurate and revealing information about high schools, but for more honest analysis of the students themselves. The recommendations that guidance counselors write for their students often are ambiguous and unenlightening. "They prefer to leave the guesswork to the admissions committee," says one college admissions director, and then he goes on to cite a mythical case in point: "Walter is not an outstanding student, but his family background is exceptional and his character is impeccable. I can assure you that he will never be a dope fiend or a bar fly."

IF WE ARE to prevent the shocking waste of human talent which mars our educational system and hampers our society's progress, we must take a new look at the guidance counselor and his role in public education. For too long now, professional training of counselors has been under-rated, and, as a result, too few guidance counselors are really qualified for their work. An estimated two-thirds of practicing counselors do not even meet present minimum certification requirements in their states, which by no means are as strict as they should be. Among other requirements, guidance counselors ought to have a minimum of thirty hours of specialized graduate training. Some 230 colleges and universities offer counselor training to the master's degree level, although it is fair to say that many of these programs are inadequate. Remarks made to me by counselors themselves about their training indicate that many of the courses duplicate each other, and that in critical areas such as "measurement" (testing, research, and the like), a major overhaul of courses is needed.

NOR IS IT sufficient simply to appoint a qualified guidance counselor. He must be given the facilities and staff to do the kind of job that will permit him to counsel students properly. Too many guidance programs are administered in a haphazard, piecemeal fashion, and serve little purpose other than to allow a school to claim that it offers a program in guidance. To be effective, guidance must be continuous, beginning in the early grades; it is far too late in the eleventh or twelfth grade to attempt to raise the educational sights of the indifferent or poorly directed student. Counseling is particularly needed in the eighth and ninth grades, when critical curricular decisions are made. By this time, too, definite career interests have often begun to take shape among the academically talented. Among the 356 finalists in the recent National Science Fair, for example, 95 per cent were science oriented by the time they were fourteen years old.

A well coördinated guidance program requires rather complete cumulative records on all pupils (yet, alarmingly, only six states insist upon them) and a systematic program of testing. There are tests for almost every area of a student's life, and when properly used, these tests can be of great service in helping to answer questions about a child's ability, behavior, and special skills. New and better tests are constantly being devised, yet testing itself is often misunderstood and misused—

IT HAPPENED AT HOPKINS

A Teaching Hospital

Here is an informal history of the world famous Johns Hopkins Hospital by Augusta Tucker, author of *Miss Susie Slagle's*. Liberally spiced with anecodotes about the renowned Hopkins personalities, the book traces the development of the Hospital from its planning stage to the present, and it captures the excitement that is and always has been a part of Johns Hopkins.

144 pages • 60 illustrations • chrome-coated covers • $2.50

Copies may be obtained through The Women's Board of The Johns Hopkins Hospital at The Gatehouse 601 North Broadway, Baltimore 5, Maryland

or all too frequently it is not used at all.

Standardized tests are neither crystal balls nor useless psychometric gimmicks. "We have no particular evidence," Henry Chauncey, president of the Educational Testing Service, has pointed out, "that they measure potential creativity, original thinking, or inventiveness. . . . We cannot feed results of a secondary school standardized testing program into an electronic computer and expect a guaranteed roster of future Einsteins and Pasteurs to emerge." He goes on to say: "What tests can do for us, if we use them knowledgeably, is identify the larger number of students who are in the score ranges from which creative scientists, engineers, philosophers, historians, economists, psychologists, jurists, educators are most likely to emerge."

WHILE THE inadequacies in guidance counseling have been too long ignored, there are encouraging signs of new interest and promised improvements in the field. The National Defense Education Act of 1958 annually supports more than fifty short-term, graduate-level "institutes" to give additional training to practicing guidance counselors. Other funds under the NDEA go to the states, on a matching basis, to improve counseling and to support state-wide testing programs. A countless number of projects in psychological and psychometric research are adding new knowledge to the field of guidance counseling; an impressive example is "Project Talent," a federally supported project which is probably the most extensive and carefully conducted testing program ever devised. Last year, tests were administered to 450,000 high school students throughout the country to measure their aptitudes, abilities, and other characteristics. And follow-up studies are planned one, five, ten, and twenty years after the students have graduated from high school.

In our democratic system, of course, the significant advances must often be made in slow and patient steps and at a local level. Individual schools must appraise their guidance programs and design realistic changes. For better communications between high schools and colleges, much of the initiative has to come from the colleges themselves.

And lastly, pressure for better guidance must come from informed parents, whose stake in the matter is the maximum development of the potentialities of their own children.

The Price of Indifference

A solution to the problem

ALUMNI ARE A VITAL LINK BETWEEN HIGH SCHOOLS AND THE UNIVERSITY

THE guidance counselor, as Dr. Lloyd points out, can do much to help the high school senior choose the college most suitable for him. But to do his job effectively he must know a great deal about a lot of colleges, since the abilities and interests of his students are likely to cover a wide range.

How much *does* the guidance counselor know about colleges? Or, to narrow the question to the test case of interest to the readers of *The Johns Hopkins Magazine*: How much does he know about Johns Hopkins?

To find the answer to the second question, the editors informally interviewed, by phone, twelfth-grade counselors in thirty metropolitan high schools scattered from Massachusetts to California. These included public and a few private schools, with senior classes ranging in size from 150 to 800 students. All but three of the schools were "superior" (that is, more than half of their graduates go on to college).

The answers were revealing. Asked what they think of first when they hear the name "Johns Hopkins," twenty-two counselors replied "medical school" or "hospital"; only six thought immediately of a university with many programs. (A counselor in a Pittsburgh high school was clearly at sea. "*Johns* Hopkins?" he asked, with a hint of incredulity. "If you had said *John* Hopkins, I would have said 'medical school.' But *Johns* Hopkins—you've got me there.")

In response to a "shotgun" question—"What can you tell us, offhand, about Johns Hopkins?"—less than a third of the counselors (all of them from nearby Eastern high schools) could qualify as "well-informed."

Answers to other, more specific, questions reinforced that judgment.

Where do these counselors gain their information about Johns Hopkins? Most of them receive catalogues and brochures from the University, but six of them do not—including a Dallas high school from which all but 40 of the 1,022 graduates in the last three years have attended college. Only seven of the counselors have been visited by a representative of Johns Hopkins, and only three have visited the campus.

Small wonder, then, that half of the counselors have never recommended Johns Hopkins to a student. And less than a third of them have recommended Johns Hopkins to more than five.

THE admissions officers at Johns Hopkins properly regard this lack of communication as a serious problem. But little blame can be placed on the guidance counselors themselves, who have too little time and too little help to do their jobs adequately.

Nor does the fault lie wholly on the other side of the fence. "We too have insufficient manpower and too many other essential tasks," says Robert Bilgrave, director of admissions at Johns Hopkins. "We can only make a dent in establishing firm lines of communication with the 26,500 high schools in this country. Our efforts now are directed toward a selected group of 2,500 schools—300 of them in particular.

"We need assistance. Despite the increased numbers of college applicants, the competition for the best students is more intense than ever." As a source of help, Mr. Bilgrave suggests the alumni, "who, because of their diversity and geographic spread, are in an ideal position to foster good relationships with guidance counselors and students.

"Alumni, of course, are not expected to be admissions officers; to be effective, they must work closely with our office. But with our help, alumni can be a great help in attracting excellent students and discouraging others for whom Johns Hopkins would be a poor or unrealistic choice."

There are a number of things which

Continued on page 24

A Johns Hopkins Gazette

AN UNOFFICIAL COMPENDIUM OF FACULTY AND ALUMNI APPOINTMENTS, HONORS, AND ACCOMPLISHMENTS

DEATHS

WILLIAM F. WILLOUGHBY, B.A. '88, fac. '01–'26 (political science); on May 6, 1960. Mr. Willoughby was treasurer of Puerto Rico for six years and constitutional adviser to the Republic of China from 1914 to 1916. Before his retirement in 1932, he directed the Institute for Government Research, a branch of the Brookings Institution, for the first sixteen years of its operation. He was a fellow of the American Academy of Arts and Sciences and held the cross of the Legion of Honor of the French government.

VIRGIL LINN HUEY, G. '94–'96 (Latin); on May 6, 1960. He was living in Madison, Ind.

HARLAN DUDLEY, G. '98–'99 (chemistry), M.D. '03; on March 28, 1960. He was a physician in Findlay, Ohio.

KATHERINE A. (MRS. MERCER G.) JOHNSTON, graduate nurse '98; on May 20, 1960. She was living in Sewanee, Tenn.

GERTRUDE UNDERHILL LIGHT, M.D. '98; on May 24, 1960. She was living in Alcalde, N. Mex.

JAMES D. MADISON, M.D. '98, house staff '98–'99 (medicine); on February 15, 1960. He was a former faculty member of Wisconsin College of Physicians and Surgeons.

EUGENE LEVERING NORTON, arts '98–'00; on July 20, 1960. He was a member of the New York Stock Exchange and a founder of the Freeport Sulphur Company.

JOHN HENDRICKEN KING, B.A. '99, G. '99–'02 (chemistry), M.D. '06, fac. '06–'32 (medicine, clinical physiology, pathology); on June 28, 1960. Dr. King was living in Hampton, Va.

ALLMAND B. ATKINSON, arts '00–'01; on April 15, 1960. He was living in Sacramento, Calif.

JOHN HOWARD EAGER, B.A '00, G. '00–'02 (Romance languages); on April 9, 1960. Before his retirement, Mr. Eager had been with the Bankers Trust Company of New York.

FRANCES K. M. BUTLER, graduate nurse '03; on February 15, 1960. She was living in Mitchellville, Md.

LEO A. LYNCH, M.D. '03; on May 27, 1960. Dr. Lynch had been a surgeon in Brooklyn, N. Y., for fifty years.

SELDEN I. RAINFORTH, M.D. '03; on March 7, 1960. He had formerly practiced medicine in New York City.

DEWITT B. CASLER, M.D. '04, assistant professor emeritus of gynecology; on July 1, 1960. Dr. Casler was associated with Johns Hopkins for over fifty years and also served as chairman of the medical advisory board of the Nemours Foundation and the Alfred I. duPont Institute.

ELBERT CLARK, medicine '04–'05; on April 16, 1960. He was a former assistant professor of anatomy at the University of Chicago.

WILFRED H. MANWARING, M.D. '04; on July 3, 1960. He was professor emeritus of bacteriology and experimental pathology at Stanford University.

ROBERT DANIEL WILLIAMS, G. '04–'08 (philosophy); on February 12, 1960. He was professor emeritus of philosophy and psychology at Ohio State University.

JOHN A. E. EYSTER, M.D. '05, fac. '05–'08 (physiology); on March 5, 1960. He was professor emeritus of physiology at the University of Wisconsin.

GUSTAV H. WOLTERECK, B.A. '05, M.D. '09; on January 22, 1960. He was medical director of the Family and Children's Society in Baltimore for thirty-five years.

WILLIAM DAVIS FURRY, PH.D. '07 (philosophy), Johnston scholar '07–'09, fac. '09–'10 (philosophy); on December 31, 1959. He was formerly president of Ashland College in Ohio.

FREDERICK T. OWENS, M.D. '07; on April 8, 1960. He was a retired surgeon in Utica, N. Y.

MABEL A. ARMSTRONG, graduate nurse '08; on March 24, 1960. She was living in Baltimore.

JONATHAN E. BURNS, M.D. '08, fac. '16–'20, house staff '14–'17 (urology); on January 28, 1960. He was living in Phoenix, Ariz.

HARRY W. MASENHIMER, M.D. '08; on March 23, 1960. He was a retired surgeon in Cleveland, Ohio.

CHARLES F. MATHEWS, PH.D. '08 (Romance languages); on February 10, 1960. He was professor emeritus of Romance languages at Athens College in Georgia.

PHILIP B. PERLMAN, arts '08–'09; on July 31, 1960. Mr. Perlman was a former United States Solicitor General and was co-chairman of the 1960 Democratic platform committee.

DUDLEY R. WEBB, JR., arts '08–'10; on May 24, 1960. He was living in Philadelphia, Pa.

CLAUDE C. CODY, JR., M.D. '10; on December 30, 1959. He was associated with the Houston Eye, Ear, Nose and Throat Hospital.

ELLA ELSROAD, graduate nurse '10; on April 11, 1960. She was living in Farnham, Va.

JOHN N. WARE, M.A. '10, PH.D. '24 (French); on December 10, 1959. He was professor and head of the department of Romance languages at Shorter College.

ARTHUR S. ROSENFELD, M.D. '11; on March 20, 1960. He was a retired physician living in Portland, Ore.

SARA ROSS SMITH, G. '11–'13 (history); on May 15, 1960. She was living in Swarthmore, Pa.

MARY IDA THOMAS, graduate nurse '11; on May 24, 1960. She was living in Eufaula, Ala.

FRANCIS SHUNK DOWNS, G. '12–'13 (history); on May 17, 1960. Dr. Downs was the former secretary of the Board of Foreign Missions of the Presbyterian Church in the United States.

CLAIRE RIDGELY PUE, graduate nurse '12; on June 4, 1960. She was formerly chief instructor at the Union Memorial Hospital School of Nursing in Baltimore.

LOUIS L. JACOBS, B.A. '13, M.D. '17; on July 14, 1960. He was a physician in Baltimore.

DAVID LAMPE, engineering '13–'14; on July 25, 1960. He was living in Baltimore.

EDMUND TILESTON MUDGE, II, arts '13–'14; on February 27, 1960. He was president of the Mudge Paper Company in Baltimore.

LEROY NEWTON FLEMING, M.D. '14, fac. '14–'15 (surgery); on April 3, 1960. Before his retirement, Dr. Fleming practiced medicine in Detroit for thirty-seven years.

HUGH J. HAGAN, M.D. '14; on June 16, 1960. He was a physician in Roanoke, Va.

CLAUDE H. LEYFIELD, G. '15–'16 (Greek); on November 1, 1959. He was a retired Protestant clergyman.

MARION EDWARDS PARK, G. '15–'16 (Latin); on May 6, 1960. She was the former president of Bryn Mawr College.

JOHN WESLEY SHIVE, PH.D. '15 (plant physiology); on June 22, 1960. Dr. Shive was professor emeritus of plant physiology at Rutgers University and pioneered in the growing of plants in sand and solution culture.

PATRICK F. MCGUIRE, M.D. '16, DR.P.H. '25, house staff '16–'17 (medicine); on June 6, 1960. He was a physician in Baltimore.

EDITH M. (MRS. SAMUEL) BUYER, M.D. '18, house staff '18–'19 (psychiatry); on June 5, 1960. She was a psychiatrist and medical supervisor for the Board of Education in New Rochelle, N. Y.

JOHN E. ELMENDORF, JR., M.D. '18, fac. '26–'27 (hygiene), house staff '18–'19 (medicine); on May 25, 1960. He recently retired as director of field studies for the

department of medicine and public health of the Rockefeller Foundation.

LESLIE TRACY GAGER, M.D. '18; on December 25, 1959. He had been a member of the medical faculties of George Washington University and Howard University.

KARL H. TANNENBAUM, M.D. '18; on December 23, 1959. He had been on the medical faculty of Northwestern University and on the staff of St. Luke's Hospital in Chicago.

CHARLES COMBS BURCH, engineering '19–'21; on March 25, 1960. He was founder and president of the Burch Company in Baltimore.

LAUREN F. BUSBY, arts '19–'20; on January 30, 1960. He was a physician in Santa Barbara, California.

HENRY S. MILLER, B.A. '19; on May 10, 1960. He was an investment broker in Baltimore.

JOAN E. (MRS. BERTRAM J.) SANGER, G. '19–'20 (philosophy); on April 18, 1960. She was living in New York.

BESSIE TALBOT STRONGMAN, M.D. '19; on February 23, 1960. She was a retired pediatrician in Los Angeles.

SIMON J. BRAGER, arts '21–'23; on April 23, 1960. He was assistant professor of surgery at the University of Maryland and former president of the staff at Mercy Hospital in Baltimore.

GOMER FLOW GOFF, M.D. '21; on February 3, 1960. He was a gynecologist and surgeon in Dallas, Tex.

THEODORE EDWARD KEATING, B.E. '21; on July 7, 1960. He was living in Baltimore.

RICHARD MINOT WOOD, B.E. '22 (civil); on March 21, 1960. He was construction manager for Stone and Webster Engineering Corporation in Boston.

BERNARD S. FRENCH, M.D. '23; on February 8, 1960. He was a retired physician and psychiatrist in Washington, D. C.

HERBERT G. WARDEN, medicine '23–'24; on February 8, 1960. He was a surgeon in New York City.

MARY S. (MRS. GEORGE K.) WILSON, G. '23–'24 (psychology); on May 11, 1960. She was living in Baltimore.

EVA MYRTLE WOOLFORD, B.S. '23; on April 15, 1960. She was a teacher in Baltimore public schools.

ISAAC HAMBURGER, B.A. '24; on July 14, 1960. He was a Baltimore civic leader and president of a retail clothing chain.

ELEANOR C. HEAVEY, B.S. '24, M.A. '28 (Romance languages), G. '28–'29 (French); on March 28, 1960. She was a retired teacher in Baltimore public schools.

HILDA PAULINE HOLME, G. '24–'25 (education); on March 6, 1960. She was a resident of Baltimore.

LEE D. KARWACKI, engineering '24–'26; on February 8, 1960. He was an attorney in Baltimore.

FRANCIS B. DE VOUGES, SR., engineering '25–'26; on November 7, 1959. He was living in Laurel, Md.

JAMES D. MCVEAN, G. '25–'26 (education); on September 1, 1959. He was with the U. S. Department of Agriculture.

ISIDORE I. NEISTADT, B.A. '25; on November 28, 1959. He was a physician in Valley Stream, N. Y.

WU LIEN-TEH, M.P.H. '25; on January 21, 1960. Dr. Wu was credited with having saved millions of persons in Manchuria from the bubonic plague epidemic in 1910 and had been surgeon general to Generalissimo Chiang Kai-shek.

WILBER E. GATTENS, fac. '26–'27 (clinical medicine); on December 14, 1959. He was a physician in Frostburg, Md.

JAMES P. GRAHAM, G. '26–'27 (chemistry); on February 12, 1960. He was a research metallurgist with Republic Steel Corporation in Cleveland, Ohio.

DOROTHY VAN PATTEN (MRS. G. W.) LEGENBAUER, graduate nurse '26; on February 18, 1960. She was living in Albany, N. Y.

A PROFESSOR EMERITUS DIES

ROBERT M. MOTTAR

LEO SPITZER

The late Spanish poet and Hopkins professor Pedro Salinas once said: "Leo Spitzer is more than a mortal human being; he is an undying lesson and example." And the man whose life testified to the validity of such an appraisal died this past September in Italy at the age of 73. Leo Spitzer's death leaves a void, the magnitude of which is rarely felt in the scholarly world. As a giant in the field of literary history and philology, Professor Spitzer sought an understanding of his own and past civilizations through the study of the written and spoken documents of human thought; as a humanist he devoted himself to "man and the understanding of man."

His office in Gilman Hall, crammed with thousands of volumes in the twenty or more languages in which he was fluent and with reams of completed and near-completed findings of his never-ending research, was, to the world's scholars during the twenty-four years he was a member of the Hopkins faculty, "the great dwelling-place of philology."

A product of the German university system himself, Professor Spitzer sought to nurture the German traditions on which Johns Hopkins was partially based, and was outspoken in his beliefs of what a university should be. He stressed the importance of the balance between the lecture and the seminar as the ideal means of teaching and the importance of avoiding over-specialization. The university must develop the specific talents of its students, he once said, but it must also develop in them a sense of unity and interconnection of all knowledge. "The university has the task of creating the particular atmosphere in which scholars may present knowledge on the basis of its ultimate unity." He deplored the rigidity of regular class assignments, attendance checks, and quizzes, and he urged universities and students alike to foster the love of study and science for its own sake.

Professor Spitzer left behind a monumental contribution to the study of literature—a dozen books and more than 800 articles in his field—but more important, he left succeeding generations a truth too often forgotten in our scientific age: "The old is not dead," he said, "it is alive for the man who looks at it with new eyes."

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ROBERT BLACK LYONS, business economy '26–'31; on April 14, 1960. He was living in Baltimore.

EUGENE O'DUNNE, fac. '26–'46 (medical jurisprudence); on October 30, 1959. He was a teacher, lawyer, and judge in the courts of Baltimore for more than fifty years.

ALBERT H. POETKER, PH.D. '26 (physics); on May 6, 1960. He was professor emeritus of physics at Xavier University.

CHRISTOPHER C. SHAW, medicine '26–'28, fac. '33–'34 (medicine); on December 5, 1959. He was chief medical officer at the Philadelphia Navy Yard.

WALTER C. HAUSHEER, DR.P.H. '27; on February 25, 1960. He had been a researcher in tropical medicine with the Rockefeller Foundation.

HANS FRIEDRICH JENSEN, fellow '27–'30, fac. '30–'37 (pharmacology, endocrine research); on September 30, 1959. He was chief biochemist for the Field Research Laboratory at Fort Knox, Ky.

EUGENE O'DUNNE, JR., B.A. '27; on November 22, 1959. He was an attorney in Washington, D. C.

JOHN W. WARREN, engineering '27–'28; on December 26, 1959. He was with the Western Electric Company in Baltimore.

MARY ROSE DIXON (MRS. HAROLD D.) FOX, B.S. '28; on November 2, 1959. She was living in Baltimore.

THEO JACOBS, M.A. '28 (political economy), G. '29–'30 (psychology), fac. '19–'29 (social economy); on June 27, 1960. She was living in Baltimore.

THEODORE W. LANGER, B.A. '28; on November 1, 1959. He was a research chemist at the Linde Company in Buffalo, N. Y.

J. DONALDSON PARR, G. '28–'29 (political economy); on November 20, 1959. He was living in Annapolis, Md.

MARY ROSE PATTERSON, B.S. '28, G. '28–'29 (education); on January 3, 1960. She had been a teacher in Baltimore schools for fifty-five years. Miss Patterson had helped organize the University's Homewood summer school for talented children and served as its principal from 1920 to 1924.

MILTON L. REGUS, B.S. '28; on April 18, 1960. He had been a sales representative for the Rand McNally Company.

PAUL AUGUSTUS WERNER, G. '28–'29 (psychology); on December 4, 1959. He was rector of St. Paul's Church in Red Lion, Pa.

LAWRENCE M. TAYLOR, JR., G. '29–'30 (education); on January 31, 1960. He was with the Postal Transportation Service.

M. HERBERT KING, B.S. '30; on January 11, 1960. He was with Sullivan, Stauffer, Colwell-Bayles, Incorporated, in New York.

ABRAHAM LEIKENSOHN, G. '30–'31 (chemistry); on April 13, 1959. He was a physician in Staten Island, N. Y.

CHARLES A. OLIPHANT, G. '30–'31 (political science); on March 29, 1960. He was formerly chief counsel of the Bureau of Internal Revenue.

LAURA F. SCHOENBORN, graduate dietitian '30; on December 24, 1959. She was a nutritionist with the Department of Health, Education, and Welfare.

GEORGE A. GOATLEY, G. '31–'32 (education); on January 20, 1960. He was living in Baltimore.

SAUL REX BUC, PH.D. '38, fac. '38–'41 (chemistry); on June 5, 1960. He was a senior research chemist for General Analine and Film Corporation in Easton, Pa.

CHARLES A. HOPWOOD, JR., B.S. '56; on March 26, 1960. He was an accountant in Baltimore.

JACOB B. RICHTER, M.P.H. '56; on March 5, 1960. He was a veterinarian with the New Jersey department of health.

CHARLES R. CLARK, staff member (ORO); on July 23, 1960. Dr. Clark was a pioneer in the study of radiological warfare and the use of missiles for logistical support and served on the staff of the Operations Research Office for nine years.

WILLIAM L. GALVIN, Hospital trustee; on April 12, 1960. Mr. Galvin, who was considered one of the outstanding Roman Catholic laymen in the country, served as legal adviser to the Archdiocese of Baltimore and was knighted by the late Pope Pius XI in 1939. For more than twenty years, he served as treasurer and a member of the board of trustees of Catholic University, from which he holds the honorary degree of doctor of laws. He was one of the founders of the Maryland Blue Cross and in 1947 was elected to the Johns Hopkins Hospital board of trustees.

S. BUTLER GRIMES, JR., Hospital staff and instructor in pediatrics; on July 3, 1960. Dr. Grimes was associated with the Johns Hopkins Hospital for twenty-five years. He was also affiliated with Union Memorial and Women's Hospitals in Baltimore and was supervisor of medical services for the Baltimore Department of Education.

THE ALUMNI

JULIAN P. PRICE, M.D. '26, house staff '27 (pediatrics), has been elected chairman of the board of trustees of the American Medical Association.

JAMES M. FAULKNER, house staff '27 (medicine), has been appointed chairman of the joint administrative board of the Boston University-Massachusetts Memorial Hospitals Medical Center.

JACQUES PIERCE GRAY, M.D. '28, has received the Distinguished Service Award from the American Medical Writers' Association.

E. VERNON POTTER, B.E. '28, DR.ENG. '32, has become director of the physics and electronics division of the U. S. Navy's bureau of ships.

HEDWIG KOENIG, M.D. '29, house staff '29–'30 (medicine), has been promoted to associate professor of clinical medicine at Cornell University.

IRVING J. WOLMAN, M.D. '29, house staff '30–'31 (pediatrics), has been named chairman of the department of pediatrics at the University of Pennsylvania.

STUART ZEH HAWKES, M.D. '30, has been elected medical director of the United Hospitals of Newark, N. J.

HEWALD R. COX, SC.D. '31 (hygiene), fac. '31–'32 (hygiene), has been elected president of the Society of American Bacteriologists.

ARTHUR W. GRACE, fac. '31–'32 (medicine), has been named professor emeritus of dermatology and syphilology by the State University of New York.

The late SIDNEY PAINTER, fac. '31–'60 (history), has been honored by an exhibition at the Peabody Institute in Baltimore commemorating his distinguished career in the study of medieval history.

MONROE H. MARTIN, PH.D. '32 (mathematics), has been appointed honorary lecturer in mathematics at St. Salvator's College of St. Andrews University in Scotland.

JONATHAN E. RHOADS, M.D. '32, has been elected John Rhea Barton professor and chairman of the department of surgery and director of the Harrison department of surgical research at the University of Pennsylvania.

ADOLPH WEINZIRL, M.P.H. '32, hygiene '32–'33, has received the 1960 Oregon Public Health Association award.

JOHN HOLMES DINGLE, SC.D. '33 (hygiene), has been awarded the 1959 Albert Lasker Award for his outstanding service to public health. He has also been elected president of the Central Society for Clinical Research.

JOHN A. WHEELER, PH.D. '33 (physics), has been appointed to the board of trustees of the Battelle Memorial Institute in Columbus, Ohio.

STANLEY E. BRADLEY, B.A. '34, has been appointed chairman of the department of medicine at Columbia University and director of medical service at the Presbyterian Hospital.

MORTON KRAMER, B.A. '34, G. '34–'35 (chemistry), SC.D. '39 (hygiene), has been appointed to the World Health Organization.

ALBERT M. POTTS, B.A. '34, has been appointed professor of ophthalmology in the department of surgery and director of research in ophthalmology at the University of Chicago.

ROBERT J. WEISS, arts '34–'38, has become professor and chairman of the department of psychiatry at Dartmouth Medical School.

HERMAN E. HILLEBOE, M.P.H. '35, has received the Arthur C. McCormack award from the Association of State and Territorial Health Officers for his contributions to the field of public health.

KENNETH L. PICKRELL, M.D. '35, fellow '36–'37, fac. '36–'44, house staff '35–'43 (surgery), has been elected president of the American Society of Plastic and Reconstructive Surgery.

JAY A. SMITH, M.A. '38, PH.D. '39 (zoology), has been appointed professor of physiology and pharmacology at the Chicago Medical School.

ANSWER TO PUZZLE ON COVER IV OF LAST MONTH'S ISSUE

A L E		605
R U M		987
W I N E		4235
W U W L	=	4840
E W W E		5445
E R M P N E		597135

In a problem of this sort the digit 0 can often be found by simple inspection. For instance, in the second column from the right, L must equal 0 since N plus L equals N and nothing has been carried over from the first column on the right. R, U, and M can be eliminated as possible substitutes of 1, since none of these, as multipliers, reproduces A L E. Moreover, E cannot be 1 since U times E does not yield a product ending in U. Since the partial product W U W L ends in 0, one of the two letters U and E must be 5. By inspection of the other partial products, we see that both M times E and R times E are numbers ending in E. Therefore E must be 5. Continue in this way.

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A Solution to the Problem

Continued from page 19

alumni can do:

▶Telephone local high school counselors and offer to assist in providing information about Johns Hopkins.

▶Invite guidance counselors and/or high school students to alumni affairs which may be of interest to them.

▶Get in touch with boys whose names appear in newspapers as being leaders and qualified students.

▶Interview candidates who have applied to Johns Hopkins.

▶Represent the University in high school "college night" programs.

▶Organize a panel of alumni and offer its service for school assemblies, P.T.A. programs, and various club meetings. The discussion topic need not be Johns Hopkins.

"Many of these things are being done by alumni, and done well," Mr. Bilgrave reports. "In upstate New York, Chicago, and Southern California, for example, where alumni have formed strong 'schools committees,' the number and the quality of applicants have risen sharply.

"These committees work closely with the admissions office, and it is essential that other alumni eager to help do likewise. An alumnus who is uninformed, or misinformed, or who misleads a student, may do more harm than good. (It is significant, I think, that more than half of the counselors interviewed by the editors expressed some misgivings about alumni help, usually for these reasons.) We will gladly send the manual we have prepared for the schools committees, plus other detailed information and suggestions, and offer further help when it is needed.

"Most important, the interested alumnus must be prepared to devote the time and energy to do the work satisfactorily. But the rewards for his efforts will be great, both to himself and to the University.

"Also, I might add, to the guidance counselor."

Alumni who would like to assist the admissions office should write to Robert P. Bilgrave, Director of Admissions, Johns Hopkins University, Baltimore 18, Md.

ANNUAL

CHRISTMAS SALE

Sponsored by the Women's Board of the Johns Hopkins Hospital

Tuesday through Thursday, November 1, 2, 3, at Evergreen House, 4545 N. Charles Street, and Friday, November 4, under the dome at the Johns Hopkins Hospital.

10 a.m. until 5 p.m. each day. In addition, a special "Men's Night" from 5 to 7 p.m., Tuesday, November 1.

The sale will feature toys, Christmas ornaments, decorations, cards, stocking fillers, gifts gathered from all parts of the world to suit every household and every member of the family.

All profits will be contributed to a special project in the new Children's Medical Center.

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Homewood, Baltimore 18, Md.

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In a word puzzle invented by Lewis Carroll, one word is changed into another by a series of intermediate words, each differing by only one letter from the one preceding it. (For example, PIG is turned into STY as follows: PIG, WIG, WAG, WAY, SAY, STY.) Proper names must not be used, and the words should be common enough to be found in the average abridged dictionary. Using as few words as possible, change the word APE into the word MAN. (The answer to last month's puzzle is on page 23.)

Evolution...

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